GJO–2002–331–TAR
MAC–LBUR 1.1

Long-Term Surveillance and Maintenance Program

Long-Term Surveillance Plan for the U.S. Department of Energy Burrell Vicinity Property Blairsville, Pennsylvania

Revised April 2000

U.S. Department of Energy

GRAND JUNCTION OFFICE

Work Performed Under DOE Contract No. DE–AC13–96GJ87335 for the U.S. Department of Energy

Long-Term Surveillance and Maintenance Program

Long-Term Surveillance Plan

for the

U.S. Department of Energy
Burrell Vicinity Property
Blairsville, Pennsylvania

April 2000 Revised

This document supersedes document number
UMTRA-DOE/AL/62350-3F Ver.2, Rev.2

Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

Work Performed Under DOE Contract Number DE-AC13-96GJ87335
Task Order Number MAC 00-06
Document Number S00350

Contents

1.0 Introduction 1-1
1.1 Purpose 1-1
1.2 Legal and Regulatory Requirements 1-1
1.3 Role of the Department of Energy 1-2
2.0 Final Site Conditions 2-1
2.1 Site History 2-1
2.2 Site Area Description 2-1
2.3 Disposal Site Description 2-3
2.3.1 Site Ownership 2-3
2.3.2 Directions to the Disposal Site 2-3
2.3.3 Description of Surface Conditions 2-3
2.3.4 Specific Site Surveillance Features 2-3
2.3.5 Site Hydrogeology 2-5
2.4 Disposal Cell Design 2-5
2.5 Ground-Water Conditions 2-6
3.0 Long-Term Surveillance Program 3-1
3.1 General License for Long-Term Custody 3-1
3.2 Requirements of the General License 3-1
3.3 Annual Site Inspections 3-1
3.3.1 Frequency of Inspections 3-1
3.3.2 Inspection Procedure 3-2
3.3.3 Inspection Checklist 3-2
3.3.4 Personnel 3-4
3.4 Annual Inspection Reports 3-4
3.5 Follow-up Inspections 3-4
3.5.1 Criteria 3-4
3.5.2 Personnel 3-5
3.5.3 Reports of Follow-up Inspections 3-5
3.6 Routine Site Maintenance and Emergency Measures 3-5
3.6.1 Routine Site Maintenance 3-5
3.6.2 Emergency Measures 3-6
3.6.3 Criteria for Routine Site Maintenance and Emergency Measures 3-6
3.6.4 Reporting Maintenance and Emergency Measures 3-6
3.7 Environmental Monitoring 3-7
3.7.1 Ground-Water Monitoring 3-7
3.8 Records 3-9
3.9 Quality Assurance 3-9
3.10 Health and Safety 3-9
4.0 References 4-1

Figures

Figure 2-1. Location of Burrell, Pennsylvania, Vicinity Property Disposal Site 2-2
Figure 2-2. North-South Cross Section of Burrell Vicinity Property Disposal Site 2-6
Figure 3-1. Map of Inspection Transects for Burrell Vicinity Property Disposal Site 3-3
Figure A-1. Location Map of Burrell Disposal Site, Burrell, Pennsylvania A-7

Tables

Table 1-1. Content Requirements of the LTSP and for the Long-Term Custodian (DOE) of the Burrell Site 1-2
Table 3-1. Transects Used During Inspection of the Burrell Site 3-2
Table 3-2. DOE Criteria for Maintenance and Emergency Measures 3-7
Table 3-3. Ground-Water Monitoring Locations, Burrell Site, Pennsylvania 3-8
Table 3-4. Ground-Water Samples Will Continue to be Analyzed for the Following 14 Analytes 3-9

Appendices

Appendix A. Site Real Estate Documentation and Access
Appendix B. Sample Field Photograph Log
Appendix C. Sample Site Inspection Checklist and Job Safety Analysis
Appendix D. Agency Notification Agreements

Plate

Plate 1. Burrell, Pennsylvania

1.0 Introduction

1.1 Purpose

This Long-Term Surveillance Plan (LTSP) explains how the U.S. Department of Energy (DOE) will fulfill general license requirements of Title 10 *U.S. Code of Federal Regulations* (CFR) Part 40.27 as the long-term custodian of the Burrell vicinity property near Blairsville, Pennsylvania.

1.2 Legal and Regulatory Requirements

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (42 USC ' 7901) as amended, provides for the remediation (or reclamation) and regulation of uranium mill tailings at two categories of mill tailings sites, Title I and Title II. Title I covers former uranium mill sites that were unlicensed, as of January 1, 1978, and essentially abandoned. Title II covers uranium milling sites under specific license as of January 1, 1978. In both cases, the licensing agency is the U.S. Nuclear Regulatory Commission (NRC), or in the case of certain Title II disposal sites, an Agreement State.

The Burrell vicinity property falls under Title I of UMTRCA. Licensing of the Burrell vicinity property site represents a departure from UMTRCA, which requires the licensing only of disposal sites, not vicinity properties. However, given the unusually large volume of waste and the distance from the Canonsburg Title I disposal cell (see Section 2.1) to the Burrell vicinity property, the DOE and the NRC have agreed that a license for a designed disposal cell with surveillance requirements constituted a reasonable and prudent approach in keeping with the spirit of UMTRCA.

Federal regulations at 10 CFR 40.27 provide for the licensing, custody, and long-term care of residual radioactive material disposal sites closed (remediated) under Title I of UMTRCA.

A general license is issued by the NRC for the custody and long-term care, including monitoring, maintenance, and emergency measures necessary to ensure that uranium mill tailings disposal sites will be cared for in such a manner as to protect the public health, safety, and the environment after closure (completion of remediation activities).

The general (long-term custody) license became effective when the previous revision of the site-specific LTSP was accepted by the NRC.

Requirements for the content of the LTSP and general requirements for the long-term custody of the Burrell vicinity property are addressed in various sections of the LTSP (Table 1-1). These requirements are defined in 10 CFR 40.27 and Appendix A of 10 CFR 40.

The plans, procedures, and specifications discussed herein are based upon the *Guidance for Implementing the Long-term Surveillance Program for UMTRCA Title I and Title II Disposal Sites* (Guidance Document) (DOE 2000). The rationale and procedures of the Guidance Document should be considered part of this plan.

Table 1-1. Content Requirements of the LTSP and for the Long-Term Custodian (DOE) of the Burrell Site

Content Requirements of LTSP		
	Requirement	*Location*
1.	Description of final site conditions	Section 2.0
2.	Legal description of site	Appendix A
3.	Description of the long-term surveillance program	Section 3.0
4.	Criteria for follow-up inspections	Section 3.5.1
5.	Criteria for maintenance and emergency measures	Section 3.6.3
Requirements for the Long-Term Custodian (DOE)		
	Requirement	*Location*
1.	Notification to NRC of changes to the LTSP	Section 3.1
2.	NRC permanent right-of-entry	Section 3.1
3.	Notification to NRC of significant construction, actions, or repairs at the site.	Section 3.5 and 3.6

1.3 Role of the Department of Energy

In 1988, the DOE designated the Grand Junction Office (GJO) to be the program office for long-term surveillance and maintenance of all DOE remedial action project disposal sites, as well as other sites as assigned, and to establish a common office for the security, surveillance, monitoring, and maintenance of these sites. The DOE established the Long-Term Surveillance and Maintenance (LTSM) Program at the GJO to carry out this responsibility.

The LTSM Program is responsible for the preparation, revision, and implementation of this LTSP, which includes site inspection, monitoring, and maintenance. The LTSM Program is responsible for annual and other reporting requirements and for maintaining records pertaining to the site.

2.0 Final Site Conditions

2.1 Site History

The Burrell vicinity property site was operated as a railroad landfill from the late 1940s through the late 1960s. In the late 1940s, the Pennsylvania Railroad constructed a berm along the bank of the Conemaugh River and began landfill operations. The landfill was believed to be used for typical railroad wastes, such as railroad ties, cinders, and excess coal (Ford, Bacon & Davis, Inc. 1979a and 1979b). From October 1956 to January 1957, 11,600 tons of residual radioactive material (RRM) were shipped from the Vitro Rare Metals Plant in Canonsburg, Pennsylvania to the Burrell site. The Vitro Rare Metals Plant eventually became the Canonsburg UMTRCA Title I site hence the identification of the Burrell site as a vicinity property. The RRM was later excavated and placed in the Burrell vicinity property disposal cell as part of the site remedial action under UMTRCA in 1986 and 1987. The disposal cell was closed in July 1987.

2.2 Site Area Description

The Burrell vicinity property is located approximately 40 miles east of Pittsburgh, 1 mile east of the Borough of Blairsville, Indiana County, in southwestern Pennsylvania (Figure 2-1). The Burrell vicinity property is bordered on the south by the Conemaugh River and on the north by the Norfolk Southern Rail Corporation railroad tracks.

The Burrell site is a plateau formed by landfilling. Excavation and landfill operations have disturbed soils at the site. Fill material exists to depths of 50 to 60 feet. The fill consists of gravelly loam and sandy loam mixed with ashes, cinders, gravel, railroad ties, bricks, boards, and sandstone fragments (DOE 1983).

The Burrell site is located in the humid continental climatic region. A succession of low- and high-pressure centers and fronts that migrate through the area during the year dominate the regional climate. The average annual precipitation of 44.4 inches is fairly evenly distributed throughout the year. The summers are generally mild but frequently humid. The winter months can be described as brisk with occasional periods of extreme cold (DOE 1983).

The Burrell vicinity property covers approximately 72 acres. Disposal of the 11,600 tons of RRM removed from the Canonsburg site took place in the western portion of the Burrell vicinity property. The RRM was brought in as fill by the railroad. Excess RRM was placed in a storage location adjacent to the Conemaugh River at Burrell, and this was later added to the disposal area. The disposal area contains a total of 86,000 tons of RRM. Immediately north of the railroad tracks adjacent to the disposal site, an unofficial open dumping area exists.

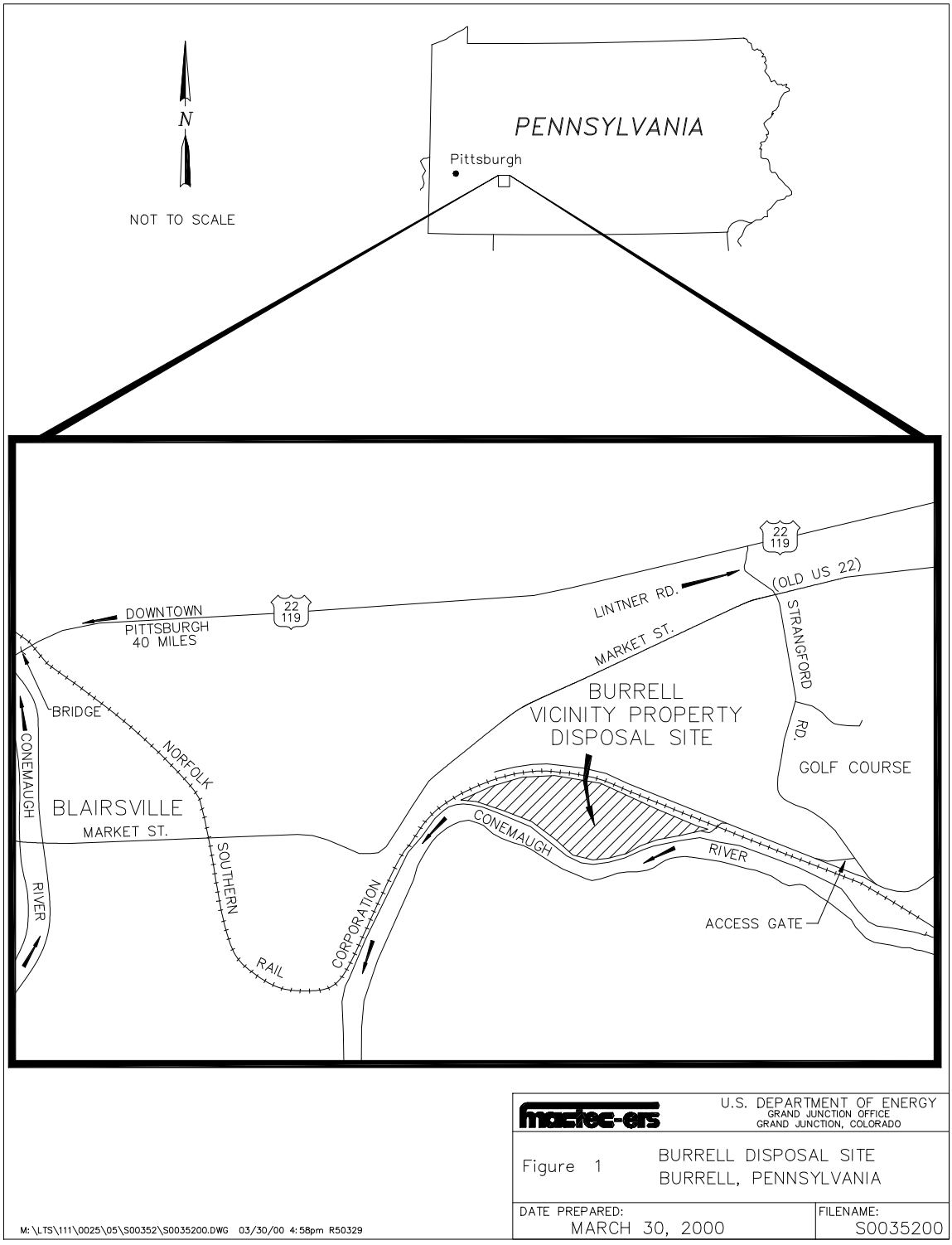


Figure 2-1. Location of Burrell, Pennsylvania, Vicinity Property Disposal Site

2.3 Disposal Site Description

2.3.1 Site Ownership

The Burrell site was acquired by the U.S. Federal Government July 14, 1986 (see Appendix A). Title to the site property, Tract 201 (CA-200), was acquired in fee simple through condemnation proceedings, subject to existing easements for public roads and highways, public utilities, railroads, and pipelines. A perpetual and assignable easement and right-of-way in, on, over, and across Tract 201 E was acquired from the Railroad, subject to existing easement for public roads and highways, public utilities, railroads, and pipelines (Appendix A, Figure A-1). The DOE makes an annual payment of $800.00 to the Railroad for grade crossing privileges.

2.3.2 Directions to the Disposal Site

The Burrell vicinity property disposal site can be accessed as follows:

Mileage	Route
0.0	East end of U.S. Highway 22 and 119 bridge over the Conemaugh River, proceed eastward.
0.2	Pass exit to Blairsville, continue travelling eastward.
2.1	Turn right (south) on Lintner Road.
2.3	Intersection of Market Street (old U.S. Highway 22) and Strangford Road (to south). Cross Market Street and proceed south and southeast on Strangford Road.
3.2	Turn right onto site access road. Follow access road across railroad tracks to site entrance gate.

2.3.3 Description of Surface Conditions

Most of the eastern half of the 72-acre site property is grass-covered with small clusters of woody growth. Most of the western half of the site property is wooded, with the exception of the disposal cell itself. The disposal cell is covered with riprap and resides in the northwest "quarter" of the vicinity property. The surface area of the disposal cell is approximately 5 acres. Surrounding the disposal site property is a chain-link fence. Its locked gates provide both vehicle and pedestrian access for authorized persons.

2.3.4 Specific Site Surveillance Features

Survey Monuments

Three permanent survey monuments were established at the Burrell vicinity property at the locations within the fenced area shown in Plate 1. The monuments were referenced to the nearest U.S. Geological Survey (USGS) or National Geodetic Survey (NGS) control networks by using second-order standards.

The Berntsen Federal iron pin survey monuments are set in concrete. Additional details regarding survey monument construction and installation are provided in the Guidance Document.

Boundary Monuments

Seven boundary monuments were placed as shown on Plate 1. The final locations of the boundary monuments were established to second-order standards and linked to the survey monument system. Additional details regarding boundary monument construction and installation are provided in the Guidance Document.

Site Marker

The Burrell vicinity property also has one granite site marker that identifies the vicinity property (Burrell, Pennsylvania), indicates the general location of the tailings on the vicinity property (boundary and cell), and shows the date of closure (July 2, 1987), the quantity of tailings (86,000 wet tons) in the disposal area, and the activity of the tailings (4 curies radium-226 [Ra-226]). The site marker was placed at the entrance to the vicinity property inside the fence (see Plate 1).

The site marker was set in a bed of reinforced concrete, extending 12 inches below frost line (approximately 48 inches below grade). The elevation and position of the site marker was determined by a survey of the same precision used in establishing the survey monuments. Additional details regarding site marker construction and installation are provided in the Guidance Document.

Signs

Signs displaying the international trefoil symbol that indicates the presence of radioactive materials are attached to the outside of the fence at 500-foot intervals around the perimeter of the vicinity property, starting at the site entrance. The signs indicate that the site is Government property, that it contains uranium mill tailings, and that trespassing is forbidden. A special entrance sign provides the name (DOE) and telephone number (970/248-6070) of the responsible agency. The signs are metal (similar to highway signs). Additional details regarding signs are provided in the Guidance Document.

Erosion Control Markers

Due to the proximity of the vicinity property to the Conemaugh River, four sets of erosion control markers were installed: two sets adjacent to the ditch outlet to the river near the southeastern boundary, and two sets at the outfall of the west ditch where it enters the Conemaugh River (Plate 1). If an erosion control marker is removed by high water in the Conemaugh River or by runoff from the disposal cell, the DOE will be alerted to the potential need to exercise mitigative measures in order to protect the integrity of the disposal site.

Berntsen A-1 monuments were used for erosion control markers. Each monument is 5 feet long and was placed 1 foot below frost line, leaving 1 foot exposed above the surface.

Displacement Monuments

Twenty displacement monuments were installed on the disposal cell during the remedial action to monitor possible differential settlement. The displacement monuments were installed prior to placement of bedding and riprap, where possible, and settlement observations (i.e., surveys to second-order standards) were made weekly until construction was completed. The final locations of the displacement monuments were determined by a survey of the same precision used in establishing the site survey monuments. Maximum settlement measured did not exceed 1 inch and maximum lateral displacements did not exceed 0.7 inch. Analysis of the data indicates that movements were small and compared closely with the limit of the settlement estimates.

It was concluded that future movements will be insignificant and that sagging of the embankment, which could have led to concentration of storm runoff, will not occur. Therefore, continued monitoring of these displacement monuments is no longer required. Displacement monument monitoring settlement plots were originally presented in the *Burrell Vicinity Property Completion Report* (DOE 1988). The displacement monuments still exist on the disposal cell as an artifact of site construction.

2.3.5 Site Hydrogeology

The Burrell site is underlain by up to 50 feet of unconsolidated fill and alluvium that overlies claystones and shales of the Pennsylvanian Casselman Formation. Ground water occurring beneath the site is unconfined in the unconsolidated material, and confined by approximately 30 to 40 feet of claystone and shale in the underlying bedrock. Depth to ground water in the unconsolidated material is in excess of 30 feet beneath the land surface. The unconsolidated materials are recharged by direct infiltration of precipitation, and by ground-water flow. Ground-water flow in the unconsolidated material at the site is to the southwest and ground water discharges to the Conemaugh River just south of the site. The predominant ground-water flow direction in the bedrock aquifer is to the south. Ground-water levels appear to vary seasonally, with higher levels occurring in the winter and lower levels occurring in the summer. Seasonal variations range up to 4 feet in the unconsolidated material and up to 3 feet in the shallow bedrock.

2.4 Disposal Cell Design

The Burrell disposal cell occupies about 5 acres of the 72-acre site. Contaminated materials are covered by a low-permeability layer of compacted clay, a bedding layer, and a protective rock cover (see Figure 2-2). The clay layer is designed to prevent the escape of radon gas and the infiltration of precipitation. The free-draining bedding layer overlies the clay layer. Precipitation runs down the sloped cell top through the bedding layer and into surrounding rock drains. The cell design promotes runoff of precipitation to minimize infiltration. The surrounding area was graded to promote drainage away from the disposal cell and was vegetated with native species to prevent erosion. The rock cover protects the disposal cell surface against erosion. A security fence to prevent unauthorized access encloses the site.

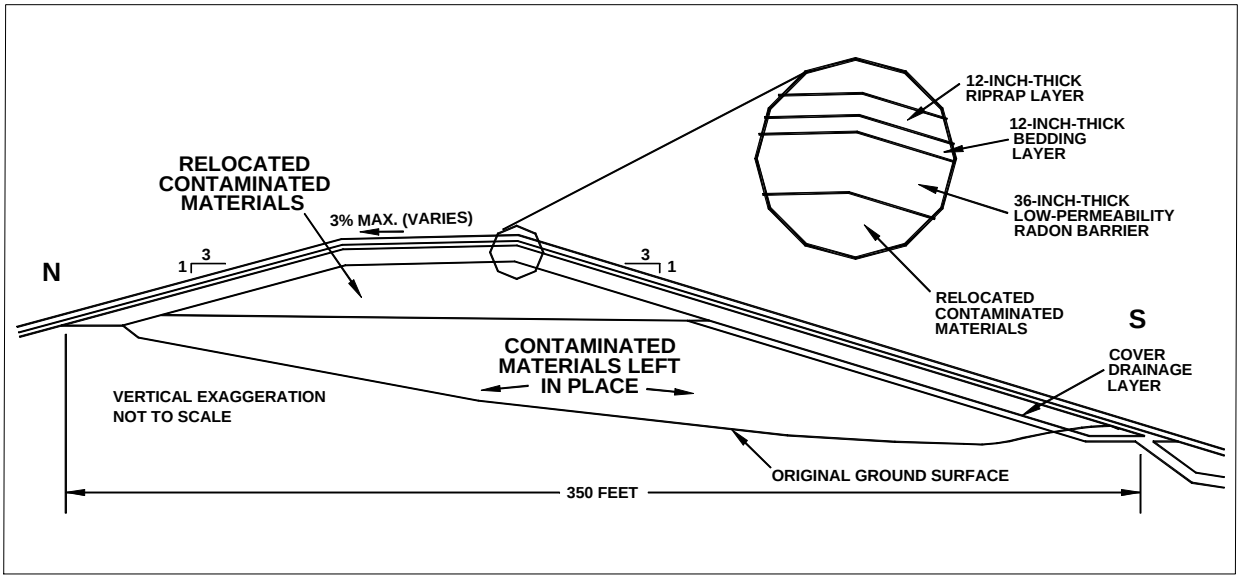


Figure 2-2. North-South Cross Section of Burrell Vicinity Property Disposal Site

2.5 Ground-Water Conditions

DOE has monitored ground water at the Burrell site since it was completed in 1987. The purpose of monitoring during this period was to demonstrate the *initial* performance of the disposal cell. During this period (1987 through 1998), no contaminant of concern (COC), except lead, exceeded its respective maximum concentration level (MCL) at any well or surface sampling location. (Lead was detected above its MCL in some wells in June 1987, when first sampled. These values were anomalously high compared to subsequent results for lead, all of which have been below the MCL.)

Molybdenum concentrations decreased slightly during the period and uranium concentrations remained essentially the same. Other COCs were present in such small concentrations that they were below laboratory detection limits. The presence of these COCs is attributed to pre-existing contamination from uncontrolled disposal of contaminated materials that occurred in 1956 and 1957. The uncontrolled disposal of contaminated materials predates construction of the Burrell disposal cell.

Ground-water level data also extend back to 1987. Since then, ground-water levels have remained relatively constant at all monitor well locations. The constancy of ground-water levels suggests that ground-water mounding within (or under) the cell, that might indicate that precipitation is flowing through the cell, is not occurring. Equally, there is no evidence of mounding from construction water and subsequent dissipation of this water from within the cell.

3.0 Long-Term Surveillance Program

3.1 General License for Long-Term Custody

With the NRC acceptance of the previous revision of the LTSP (DOE 1993), the site was included under the NRC's general license for long-term custody (10 CFR 40.27 [b]).

Although sites are designed to last "for up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years [40 CFR 192, Subpart A, ' 192.02 (a)]," there is no termination of the general license for the DOE's long-term custody of the site (10 CFR 40.27 [b]).

Should changes to this LTSP be necessary, the NRC must be notified of the changes, and the changes may not conflict with the requirements of the general license. Additionally, representatives of the NRC must be guaranteed permanent right-of-entry for the purpose of periodic site inspections. To assure permanent access to the Burrell vicinity property, DOE purchased an access easement from the adjacent property owner (included in Appendix A). The DOE also has obtained a *License Agreement for Private Grade Crossing* from the railroad that provides the legal railroad crossing necessary for site access. A copy of this agreement is also included in Appendix A.

3.2 Requirements of the General License

To meet the requirements of the NRC's license at 10 CFR 40, Section 27, and Appendix A Criterion 12, the long-term custodian must, at a minimum, fulfill the following requirements. The section in the LTSP in which each requirement is addressed is given in parentheses.

1. Annual site inspection. (Section 3.3)

2. Annual inspection report. (Section 3.4)

3. Follow-up inspections and inspection reports, as necessary. (Section 3.5)

4. Site maintenance, as necessary. (Section 3.6)

5. Emergency measures in the event of catastrophe. (Section 3.6)

6. Environmental monitoring, if required. (Section 3.7)

3.3 Annual Site Inspections

3.3.1 Frequency of Inspections

At a minimum, sites must be inspected annually to confirm the integrity of visible features at the site and to determine the need, if any, for maintenance, additional inspections, or monitoring (10 CFR 40, Appendix A, Criterion 12).

To meet this requirement, the DOE will inspect the Burrell vicinity property once each calendar year. The date of the inspection may vary from year to year, but the DOE will endeavor to inspect the site approximately once every 12 months unless circumstances warrant variance. The variance will be explained in the inspection report. At least 30 days in advance of the scheduled inspection date, the DOE will notify the NRC of the inspection schedule.

3.3.2 Inspection Procedure

For the purposes of inspection, the Burrell vicinity property will be divided into areas, called *transects.* Each transect will be individually inspected. Transects for the inspection of the Burrell vicinity property are listed in Table 3-1 and shown on Figure 3-1. General inspection procedures can be found in the Guidance Document.

Table 3-1. Transects Used During Inspection of the Burrell Site

Transect	Description
Disposal Cell	Surface of disposal cell.
Area Adjacent to Disposal Cell	Drainage channels and erosion protection features.
Site Perimeter	Site perimeter fencing, boundary monuments, warning signs, site marker.
Outlying Area	Area within 0.25 mile of site boundary, access easement, railroad crossing.

Annual inspections will be a visual walk-over. The primary purpose of the inspection will be to look for evidence of cover subsidence, erosion, structural discontinuity, maintenance of vegetation, and animal or human intrusions that could result in adverse impacts.

In addition to inspection of the site itself, inspectors will note changes and developments in the area surrounding the site. Significant changes within this area could include development or expansion of human habitation, erosion, road building, or other change in land use.

It may be necessary to document certain observations with photographs. Such observations may be evidence of vandalism or a slow modifying process that should be monitored more closely during general site inspections. A sample Field Photograph Log is included in Appendix B.

3.3.3 Inspection Checklist

The inspection is guided by the inspection checklist. A sample site-specific inspection checklist for the Burrell vicinity property site is presented in Appendix C.

Included in the inspection checklist is a discussion on the preparation for the inspection, health and safety concerns, and the performance of the inspection itself.

The checklist is subject to revision. At the conclusion of an annual site inspection, inspectors will revise the checklist, if necessary, in anticipation of the next annual site inspection. Revisions to the checklist will include such items as new discoveries or changes in site conditions that must be inspected and evaluated during the next annual inspection. Other revisions may include updating telephone numbers and directions to local medical facilities as part of the health and safety precautions noted in the checklist.

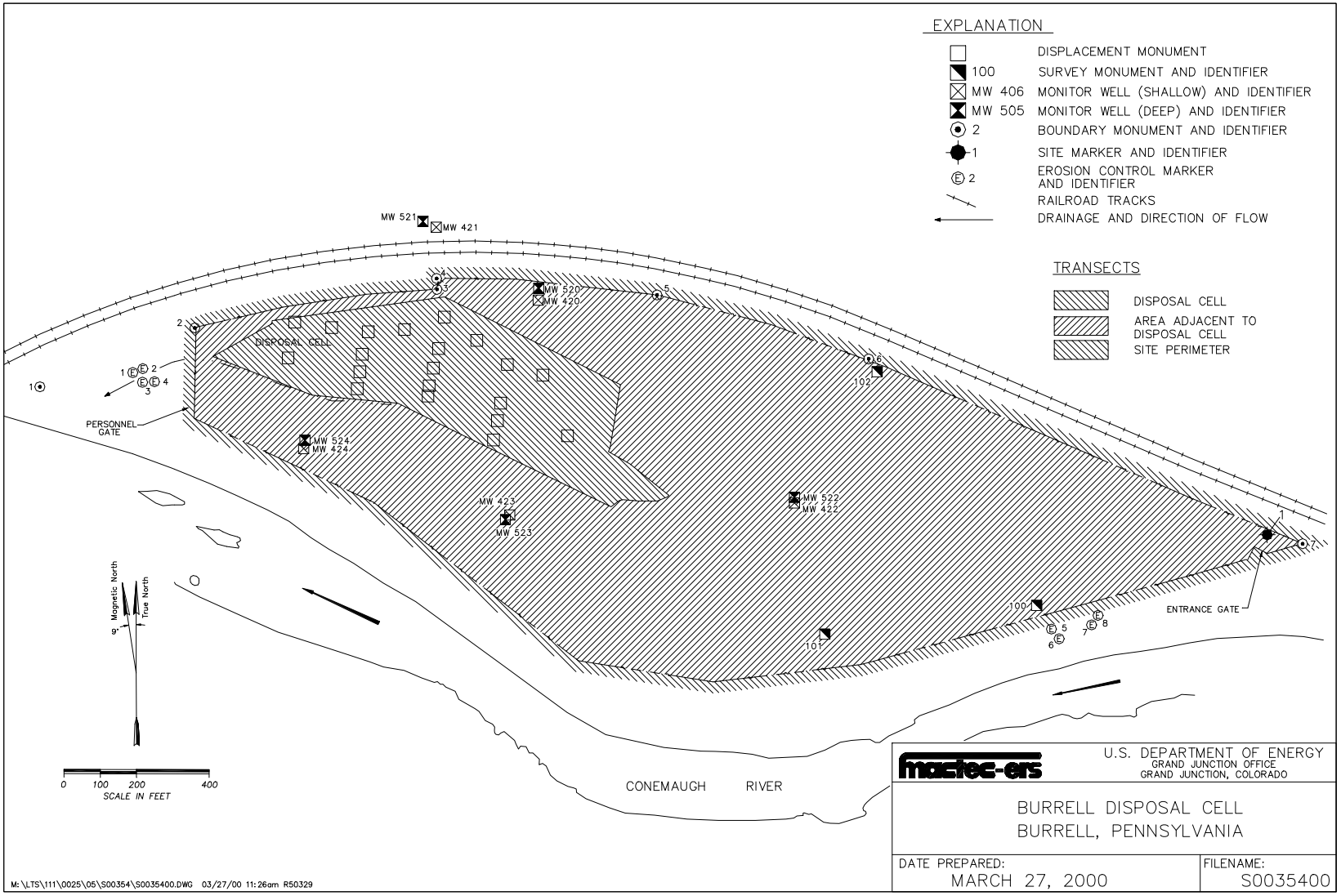


Figure 3-1. Map of Inspection Transects for Burrell Vicinity Property Disposal Site

3.3.4 Personnel

Annual inspections will typically be performed by a minimum of two inspectors. Inspectors will be experienced engineers or scientists who have been specifically trained for the purpose through participation in previous site inspections.

Engineers will typically be civil, geotechnical, or geological engineers. Scientists will include geologists, hydrologists, biologists, and environmental scientists representing various fields (e.g., ecology, soils, range management). If serious or unique problems develop at the site, additional inspectors, specialized in specific fields, may be assigned to the inspection.

3.4 Annual Inspection Reports

Results of annual site inspections will be reported to the NRC within 90 days of the last site inspection of that calendar year (10 CFR 40, Appendix A, Criterion 12). In the event that the annual report cannot be submitted within 90 days, the DOE will notify the NRC.

3.5 Follow-up Inspections

Follow-up inspections are unscheduled inspections that may be required (1) as a result of discoveries made during a previous annual site inspection, or (2) as a result of changed site conditions reported by a citizen or outside agency.

3.5.1 Criteria

Criteria necessitating follow-up inspections are required by 10 CFR 40.27 (b)(4). The DOE will conduct follow-up inspections should the following occur.

1. A condition is identified during the annual site inspection or other site visit that requires personnel, perhaps personnel with specific expertise, to return to the site to evaluate the condition.

2. The DOE is notified by a citizen or outside agency that conditions at the site are substantially changed.

Once a condition or concern is identified at the site, the DOE will evaluate the information and, on the basis of this evaluation, will decide whether or not to respond with a follow-up inspection. Conditions that may require a routine follow-up inspection include changes in vegetation, compromised slope stability, new or increased erosion, evidence of casual or low-impact human intrusion, minor vandalism, or the need to revisit the site to evaluate, define, or perform maintenance tasks. Conditions that may require a more immediate (nonroutine) follow-up inspection include extreme weather or seismic events and deliberate human intrusion that threatens the integrity of the disposal cell.

The DOE will act responsibly and will exercise flexibility by using a graded approach in scheduling routine follow-up inspections. Urgency of the follow-up inspection will be in proportion to the seriousness of the condition. For example, a follow-up inspection to investigate a vegetation problem may be scheduled for a particular time of year when growing conditions

are optimum. A routine follow-up inspection to perform maintenance or to evaluate an erosion problem might be scheduled to avoid snow cover or frozen ground.

In the event of "unusual damage or disruption" (10 CFR 40, Appendix A, Criterion 12) that threatens or compromises site safety, security, or integrity, including the unlikelihood of an actual breach in cover materials, the DOE will notify the NRC, begin the DOE occurrence notification process (DOE Order 232.1), respond with an immediate follow-up inspection, and begin emergency measures (Section 3.6) to contain or prevent dispersion of radioactive materials from the disposal cell. At any time, the DOE may request the assistance of local authorities to confirm the seriousness of a condition at the site before scheduling a follow-up inspection or initiating other appropriate action.

The DOE establishes liaison with other government agencies that will notify DOE in the event of human intrusion or unusual-to-catastrophic natural events in the vicinity of the site. Notification agreements have been established with the Indiana County Emergency Management Office, the Indiana, Pennsylvania State Police, and the U.S. Geological Survey National Earthquake Information Center in Denver, Colorado. Agency notification agreements are included in Appendix D. These agencies will contact the DOE, or will provide information upon request, should an event occur that might affect the security or integrity of the Burrell vicinity property. Information regarding severe weather events will be obtained via the Internet.

In addition, the warning signs installed at the site display a 24-hour DOE telephone number. The public may use this number to request information about the site or to advise the DOE of problems at the site. The DOE may conduct follow-up inspections in response to information provided by the public.

3.5.2 Personnel

Inspectors assigned to follow-up inspections will be selected on the same basis as for the annual site inspection. (See Section 3.3.4.)

3.5.3 Reports of Follow-up Inspections

Results of routine follow-up inspections will be included in the next annual inspection report (Section 3.4). Separate reports will not be prepared unless the DOE determines that it is advisable to notify the NRC or other outside agency of a problem at the site.

If follow-up inspections are required for more serious or emergency reasons, the DOE will submit to the NRC a preliminary report of the follow-up inspection within the required 60 days (10 CFR 40, Appendix A, Criterion 12).

3.6 Routine Site Maintenance and Emergency Measures

3.6.1 Routine Site Maintenance

UMTRCA disposal sites are designed and constructed so that "ongoing active maintenance is not necessary to preserve isolation" of radioactive material (10 CFR 40, Appendix A, Criterion 12).

The disposal cell has been designed and constructed to minimize the need for routine maintenance.

If inspection of the disposal cell reveals degradation of the as-built condition, then repairs will be conducted to reestablish the as-built condition. The DOE will perform routine site maintenance, where and when needed based on best management practices. Reports of routine site maintenance will be summarized in the annual site inspection report.

Vegetation control is no longer required at this site. Screening-level risk assessment by the DOE in 1996 through 1998 determined that plant succession on the disposal cell does not present significant or credible risk to human health or the environment and may, by evapotranspiration, improve the long-term performance of the disposal cell (DOE 1999).

3.6.2 Emergency Measures

Emergency measures are the actions that the DOE will take in response to "unusual damage or disruption" that threaten or compromise site safety, security, or integrity. The DOE will contain or prevent dispersal of radioactive materials in the unlikely event of a breach in cover materials.

3.6.3 Criteria for Routine Site Maintenance and Emergency Measures

Conceptually, there is a continuum in the progression from minor routine maintenance to large-scale reconstruction of the disposal cell following an unlikely disaster. Criteria, although required by 10 CFR 40.27 (b)(5) for triggering particular DOE responses for each progressively more serious level of intervention, are not easily defined because the nature and scale of all potential problems cannot be foreseen. The information in Table 3-2 will, however, serve as a guide for appropriate DOE responses. The table shows that the difference between routine maintenance and emergency responses is primarily one of urgency and degree of threat or risk. The DOE's priority (urgency) in column 1 of Table 3-2 bears an inverse relationship with the DOE's estimate of probability. The highest priority response is also believed to be the least likely to occur.

3.6.4 Reporting Maintenance and Emergency Measures

Routine maintenance completed during the previous 12 months will be summarized in the annual inspection report.

In accordance with 10 CFR 40.60, the DOE will notify:

> Uranium Recovery and Low-Level Waste Branch
> Division of Waste Management
> Office of Nuclear Material Safety and Safeguards
> U.S. Nuclear Regulatory Commission

within 4 hours of discovery of any Priority l or 2 event in Table 3-2. The phone number for the required 4-hour contact to the NRC Operations Center is (301) 816-5100.

Table 3-2. DOE Criteria for Maintenance and Emergency Measures[a]

Priority	Description	Example	Response
1	Breach of disposal cell with dispersal of radioactive material.	Failure of containment dam.	Notify NRC. Immediate follow-up inspection by DOE emergency response team. Emergency actions to prevent further dispersal, recover radioactive materials, and repair breach.
2	Breach without dispersal of radioactive material.	Partial or threatened exposure of radioactive materials.	Notify NRC. Immediate follow-up inspection by DOE emergency response team. Emergency actions to repair the breach.
3	Breach of site security.	Human intrusion, vandalism.	Restore security; urgency based on assessment of risk.
4	Maintenance of specific site surveillance features.	Deterioration of signs, markers.	Repair at first opportunity.
5	Minor erosion or undesirable changes in vegetation.	Erosion not immediately affecting disposal cell, invasion of undesirable plant species.	Evaluate, assess impact, respond as appropriate to eliminate problem.

[a] Other changes or conditions will be evaluated and treated similarly on the basis of perceived risk.

3.7 Environmental Monitoring

3.7.1 Ground-Water Monitoring

DOE monitors ground water at this site as a best management practice to evaluate the initial performance of the disposal cell. Natural background ground-water conditions and DOE=s initial post-remediation monitoring program are described in the previous revision of the LTSP (DOE 1993).

Initial post-remediation monitoring included annual water-level measurements and sampling at 10 monitor wells and 2 seeps for standard water-quality indicators and 20 analytes. Eight of these analytes have an MCL at 40 CFR 192, Subpart A and 60 FR 2866, Table 1: gross alpha, lead, molybdenum, radium-226 and radium-228, nitrate, selenium, and uranium.

Of these eight analytes, nitrate and the two radium isotopes have never exceeded their respective MCLs since the disposal cell was completed in 1987. Gross alpha, lead, molybdenum, selenium, and uranium exceeded their respective MCLs occasionally during early monitoring (1987 to 1992). Since then, all eight analytes have been well below their respective MCLs, and most occur at concentrations below laboratory detection limits.

Since there is no indication in the monitoring results to date that seepage from the disposal cell occurs or that it degrades ground-water quality relative to background (contaminant levels that existed in ground water prior to cell construction), the initial performance of the disposal cell is demonstrated: The disposal cell is performing as an effective containment system. DOE will, however, continue the best management practice of monitoring ground water at appropriate intervals with a reduced analyte list, and at one background/upgradient location rather than two.

Sampling Locations

The ground-water monitoring network will continue to consist of 8 wells (in 4 pairs) and 2 seeps (Table 3-3). Locations of the wells and seeps are indicated on Plate 1.

Each pair of wells consists of a shallow well, completed in unconsolidated fill and alluvium (400-series wells); and a deeper well, completed in the shallow bedrock of the Casselman Formation (500-series wells).

Two seeps at the bottom of the south side slope of the disposal cell are also sampled whenever they yield sufficient water. Sometimes the seeps can not be sampled because they are dry. Flow from these seeps responds to and may be wholly dependent on recent precipitation. Location and number of seeps may vary from year to year. Field personnel sample the two seeps with the freest flows.

Table 3-3. Ground-Water Monitoring Locations, Burrell Site, Pennsylvania

Monitor Wells	Location
MW-420 & MW-520	Upgradient, or background wells
MW-422 & MW-522	Crossgradient, point-of-compliance wells
MW-423 & MW-523	Downgradient, point-of-compliance wells
MW-424 & MW-524	Downgradient, point-of-compliance wells
Seeps	**Location**
611	Bottom of disposal cell, south side slope
612	Bottom of disposal cell, south side slope

Frequency of Monitoring

Ground water will be monitored in the fall at 5-year intervals beginning in fall of 1999. The next monitoring will be in fall of 2004 and every 5 years thereafter. After each monitoring event, DOE will review the data and compare them with data from previous monitoring. The purpose of the comparison will be to detect trends and significant changes if any should occur. From time-to-time, DOE will review the need to continue monitoring and may determine to discontinue monitoring or to continue monitoring at appropriate intervals.

Analytes

For future monitoring (beginning 2004), DOE will continue to monitor for standard water quality indicators and four analytes with MCLs: lead, molybdenum, selenium, and uranium (Table 3-4). The MCLs for these four analytes will be used as indicators for evaluating cell performance. Should future monitoring indicate increasing trends or concentrations that exceed the MCL for these analytes, DOE will conduct confirmatory sampling. If the confirmatory sampling verifies the exceedance, the DOE will develop an evaluative monitoring plan and submit that plan to the NRC for review prior to initiating the evaluative monitoring plan. Results of evaluative monitoring would be used to determine if corrective action is necessary.

Table 3-4. Ground-Water Samples Will Continue to be Analyzed for the Following 14 Analytes

Analyte	MCL	Analyte	MCL
Calcium	None	Potassium	None
Chloride	None	Nitrate (as N)	10.0 mg/L
Iron	None	Selenium	0.01 mg/L
Lead	0.05 mg/L	Sodium	None
Magnesium	None	Sulfate	None
Manganese	None	Total dissolved solids (TDS)	None
Molybdenum	0.1 mg/L	Uranium	0.044 mg/L

3.8 Records

The LTSM Program maintains site records in a permanent site file at the GJO. These records are available for inspection by government agencies or the public. Records include disposal site characterization, design, and construction documents. Annual inspection, maintenance, and monitoring results are also part of the permanent site file.

All LTSM Program records are maintained in full compliance with DOE requirements:

1. DOE Order 1324.2A, Records Disposition

2. 36 CFR Parts 1220-1236, National Archives and Records Administration

3.9 Quality Assurance

The long-term care of the Burrell vicinity property and all activities related to the annual surveillance and maintenance of the site will comply with DOE Order 414.1A, Quality Assurance (QA) and ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs* (American Society for Quality Control 1994).

QA requirements will be transmitted through procurement documents to subcontractors if/when appropriate.

3.10 Health and Safety

Health and safety procedures for LTSM Program activities are consistent with DOE orders, regulations, codes, and standards.

Immediate health and safety concerns are listed in the Inspection Checklist (Section 3.3.3 and Appendix C). Also in the Job Safety Analysis section of the Inspection Checklist are 24-hour emergency phone numbers for fire, hospital and ambulance, and police and sheriff. The checklist is updated before each inspection to advise on-site personnel of new and continuing health and safety considerations. A Job Safety Analysis is reviewed before each inspection. At a pre-inspection briefing, on-site personnel review the Job Safety Analysis and are instructed on hazards that may be present at the site and health and safety procedures that must be followed.

Subcontractors (for maintenance) are advised of health and safety requirements through appropriate procurement documents. Subcontractors must submit health and safety plans for all actions subject to Occupational Safety and Health Administration (OSHA) requirements. Subcontractor health and safety plans will be reviewed and approved before the contract is awarded. Proposals from subcontractors without an adequate health and safety plan are rejected.

4.0 References

U.S. Department of Energy, 2000. *Guidance for Implementing the Long-term Surveillance Program for UMTRCA Title I and Title II Disposal Sites*, prepared by the U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado.

? ? ? , 1999. *Plant encroachment on the Burrell, Pennsylvania, Disposal Cell: Evaluation of Long-Term Performance and Risk*, GJO-99-96-TAR, prepared by the U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, June.

? ? ? , 1993. *Burrell, Pennsylvania Vicinity Property Long-Term Surveillance Plan.* UMTRA-DOE/AL/62350-3F, prepared by the U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.

? ? ? , 1988. *Burrell Vicinity Property Completion Report, Final*, prepared by Morrison-Knudsen Ferguson for the UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.

? ? ? , 1983. *Final Environmental Impact Statement, Remedial Actions at the Former Vitro Rare Metals Plant Site, Canonsburg, Washington County, Pennsylvania.* DOE/EIS-0096-F. Albuquerque Operations Office, Albuquerque, New Mexico.

Ford, Bacon & Davis, Inc., 1979a. *Formerly Utilized MED/AEC Sites Remedial Action Program, Engineering Evaluation of the Pennsylvania Railroad Landfill Site, Burrell Township, Pennsylvania, Final Report,* document FBDU 230-003, Salt Lake City, UT.

Ford, Bacon & Davis, Inc., 1979b. *Formerly Utilized MED/AEC Sites Remedial Action Program, Environmental Analysis of the Pennsylvania Railroad Landfill Site, Burrell Township, Pennsylvania,* document FBDU 230-007, Salt Lake City, UT.

End of current text

Appendix A

Site Real Estate Documentation and Access

Real Estate Documentation

Long-Term Surveillance Plan

Burrell Disposal Site

Indiana County, Pennsylvania

General

Acquisition of the Burrell disposal site was finalized by civil action in the United States District Court for the Western District of Pennsylvania, Case Number 86-1475, July 14, 1986, United States of America, Plaintiff *N*/71.83 acres of land, more or less, situated in Indiana County, Commonwealth of Pennsylvania, and George Wm. Burrow, a/k/a George W. Burrows, et al., defendants. Final disposition of the case is dated December 27, 1988. The real estate associated with the disposal site contains "69.12 acres, more or less, including all of the area of muds, flats, and land under the waters of the Conemaugh River in which all rights, title, and interest extends or should extend by law or custom together with all riparian rights appertaining thereto." The case included 2.71 acres of perpetual right-of-way leading from the southerly side of State Road, Legislative Route 32006, at Strangford to the disposal site.

Documentation of Acquisition

Disposal site/access

(1) Legal descriptions-See attachment Tracts 201 and 201-E

(2) Filed:
United States of America, Plaintiff v 71.83 acres of land, more or less, situated in Indiana County. Commonwealth of Pennsylvania, and George Wm. Burrow, a/ka George W. Burrows, et al., defendants, Civil Action No. 86-1475, July 14, 1986, United States District Court for the Western District of Pennsylvania.

Repository

Real estate correspondence and related documents are maintained and filed by the Property Management Branch, Facilities and Property Management Division, Albuquerque Operations Office under the supervision of Corville J. Nohava, (505) 845-6450.

Tract: 201 E	UMTRA Project
Owner: George Wm. Burrows, et ux	Department of Energy
Acres: 2.71	Burrell Township, Pennsylvania
	Road Easement

Legal Description

Tract No. 201 E

A certain tract of land situated in the Township of Burrell, County of Indiana and Commonwealth of Pennsylvania, on the southerly side of Legislative Route 32006 at Strangford. Said tract of land is a right-of-way for a proposed haulroad, located partly along an existing private road and more particularly bounded and described as follows:

Beginning at the entrance to said private road on the southerly side of Legislative route 32006 (Strangford Road), said point is located westerly approximately 0.4 mile along Strangford Road from Toms Run and southerly approximately 0.8 mile along said road from Old State Route (Market Street). Said beginning point is also approximately 480 feet right of centerline Station 479+30 of the Consolidated Rail Corporation; thence, from said point of beginning, along the southerly side of said Strangford Road,

South 33° 30' east 110 feet; thence, leaving said Strangford Road, with the southerly line of said haulroad,

North 66° 30' west 90 feet,

South 59° 30' west 415 feet to an iron pin set in the northerly right-of-way line of said Consolidated Rail Corporation; thence, with said right-of-way line,

North 64° 11' west 1,702 feet to a point on the northerly line of said haulroad; thence, leaving said railroad right-of-way line, with the said northerly line of said haulroad,

North 69° 49' east 74 feet,
South 64° 11' east 1400 feet,
South 69° 30' east 150 feet,
North 85° 00' east 200 feet,
North 59° 30' east 160 feet,
North 36° 30' east 100 feet,

North 06° 00' west 98 feet to a point on the said southerly side of Strangford Road; thence, along the southerly side of said road,

South 25° 50' east 127 feet to the point of beginning, containing 2.71 acres, more or less.

It is the intent of the above description to include a part of former railroad property described in the following deeds together with the former river channel riparian thereto:

1. Deed Book A-45, page 250 from Christopher Hill to the Western Pennsylvania Railroad Company, recorded 7 November 1882, in the records of Indiana County.

2. Deed Book 288, page 122 from Alva Forsha, et al. to the Pennsylvania Railroad Company, recorded 1 July 1937, in the records of Indiana County.

3. Deed Book, B-54, page 38 from Jerome Bock, et al. to the Western Pennsylvania Railroad Company, recorded 14 October 1890, in the records of Indiana County.

4. Deed Book 1003, page 380 from Annie Hartman, et al. to the Pennsylvania Railroad Company, recorded 23 October 1937, in the records of Westmoreland County.

Tract: 201 E UMTRA Project

Thereafter, the tracks of the railroad were relocated along with the channel of the Conemaugh River to occupy lands to the south. The said lands occupied by the former roadbed of the railroad and river channel were excepted and reserved in the Deed of the Trustees of the property of the Penn Central Transportation Company to the Consolidated Rail Corporation, dated 30 March 1976 and recorded in Indiana County in Deed Book 751, page 408, the same being depicted on certain railroad valuation maps recorded and made a part of said deed. The same land is a part of the land subsequently described in the first parcel of a deed from the Penn Central Corporation to George Wm. Burrows, and Wilma Gene Burrows, his wife, dated 30 April 1980 and recorded 2 June 1980 in the Office of the Recorder of Deeds of Indiana County, Pennsylvania, in Deed Book Volume 799, page 95.

Tract: 201
Owner: George Wm. Burrows, et ux
Acres: 69.12

UMTRA Project
U.S. Department of Energy
Burrell Township, Pennsylvania
Fee Tract

Legal Description

Tract No. 201

A certain tract of land situated in the Township of Burrell, County of Indiana and Commonwealth of Pennsylvania, on the Conemaugh River, between Blairsville and Strangford. Said Tract is sometimes called the Strangford Dump and is more particularly described as follows:

Beginning at a point 510 feet, more or less, westerly of Milepost 7 and 110 feet left of the monumented centerline of the Consolidated Rail Corporation railroad;

thence, with a curve to the right having a radius of 2,761.43 feet, easterly 1,135.02 feet to a point 110 feet left of said centerline;

thence, north 00° 45' 18" east 30.00 feet to a point 80 feet left of said centerline;

thence, with a curve to the right having a radius of 2,791.43 feet, easterly 1,221.24 feet to a point of 80 feet left of said centerline;

thence, south 64° 11' 00" east 1,300 feet to a point 80 feet left of said centerline;

thence, southwesterly approximately 690.00 feet to the center of the Conemaugh River, a point in the line between Westmorland County and Indiana County;

thence, downstream with said county line and the meanders of said river, westerly approximately 3,070.00 feet;

thence, leaving said county line and river northerly approximately 290.00 feet to the point of beginning, containing 69.12 acres, more or less, including all of the area of muds, flats, and land under the waters of the Conemaugh River in which all right, title, and interest extends or should extend by law or custom together with all riparian rights appertaining thereto.

It is the intent of the above description to include the same land as the first tract described in a deed from Paul Interoligator, et ux to the Pennsylvania Railroad Company, dated 10 September 1943 and recorded in the records of Indiana County in Deed Book 329, page 68. The same was subsequently conveyed as the second parcel in a deed from the Penn Central Corporation to George Wm. Burrows and Wilma Gene Burrows, his wife, dated 30 April 1980 and recorded 2 June 1980 in the records of Indiana County, Pennsylvania in Deed Book 799, page 95.

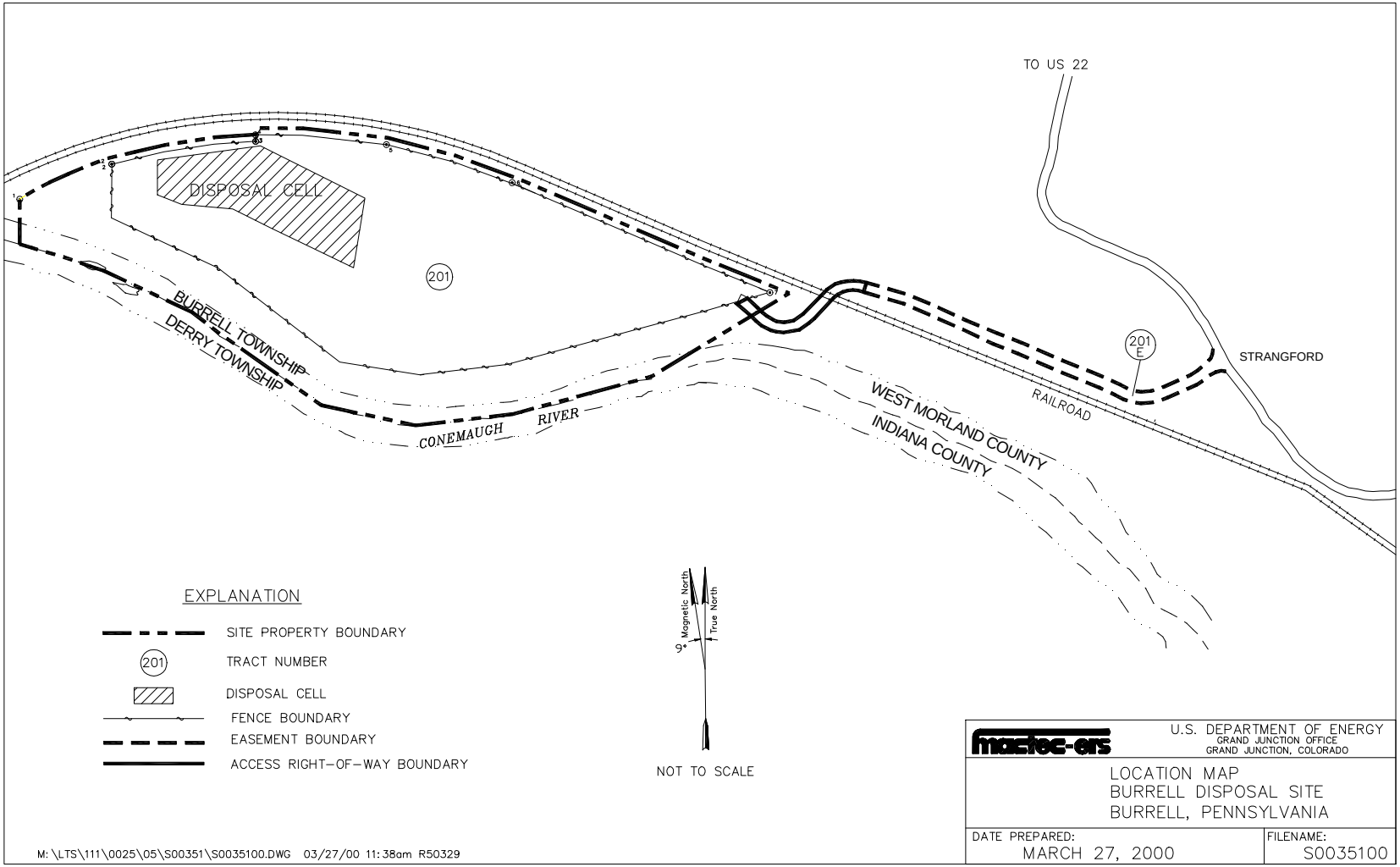


Figure A-1. Location Map of Burrell Disposal Site, Burrell, Pennsylvania

End of current text

Appendix B

Sample Field Photograph Log

Field Photograph Log

Site: _____ Roll No. ___ (of ___)
Date: _____

Frame	Azimuth	Pl-Number	Subject/Description

Remarks:

Inspector/Photographer: _____

Field Photograph Log (continued)

Site: _____ Roll No. ___ (of ___)
Date: _____

Frame	Azimuth	Pl-Number	Subject/Description

Remarks:

Inspector/Photographer: _____

Appendix C

Sample Site Inspection Checklist and

Job Safety Analysis

Site Status Report (Checklist) And Job Safety Analysis
Burrell

Status of Site Inspections

Last Update of Status Report:	October 9, 1999
Last Annual Inspection:	October 13, 1998
Inspectors:	Kastens and Plessinger
Next Annual Inspection:	Week of October 18, 1999
Inspectors:	Jones and Gardner
Last Follow-Up Inspection:	None

Issues

1. Old business:

- Guard rail has been installed along Strangford Road to deter trespassing on the Burrows property and along DOE's right-of-way.
- Potholes along DOE's right-of-way across the Burrows property have been filled with roadbase.
- Conrail maintenance personnel have a habit of using the DOE access gate at Strangford Road and leaving the gate open and unlocked. Conrail has a nice pole gate closer to the railroad tracks, but it does not use its gate for some reason.
- Trespassing on the Burrows property by dirt bikes and ATV's is a recent problem. The new guard rail is to discourage this use.
- Illegal dumping has occurred, for years apparently, along the railroad track north of the site.
- Vegetation is mowed annually to allow samplers to drive to the monitor wells. Vegetation is also mowed, cleared, and sprayed along the security fence to allow the fence to be inspected and, if necessary repaired, and to prevent trees and large plants from damaging the fence.
- A spring or seep west of perimeter sign P8 may destabilize the security fence.

Checklist: Burrell
October 8, 1999

Feature	Comment
Access Gate at Strangford Road	Guard rail installed in 1999
Access Road	Leads from Strangford Road, across DOE Tract 201-E, then across the Conrail tracks to the entrance gate. Potholes filled with roadbase in 1999.
Entrance Gate	
Pedestrian Gate	West end of site.
Entrance Sign	
Perimeter Signs	Total: 17
Security Fence	Previous problems include theft of parts of the fence and vandalization of barbed wire. Hunters have been known to bait deer with apples inside the fence. Vegetation cleared in 1999. Seep 60 feet east of P8 may destabilize of the fence.
Survey Monuments	Total: 3
Boundary Monuments	Total: 7 BM-1 is hard to find in a thickly wooded area and may be buried by silt from a recent high stand of the Conemaugh River.
Site Marker	Only 1, near entrance gate.
Erosion Control Markers	Total: 8 (4 pair) Visual examination only. No measurements.
Monitor Wells	Total: 10 (5 pair).
Displacement Monuments	Artifacts of construction. No longer surveyed or inspected.
Biointrusion	
Seeps	Base of south side slope. Flow varies with recent precipitation.
River Bank	Between security fence and the river. Inspect for seeps and slope instability.
“Strangford Dump”	Most waste is household. Look for changes in dumping practices.

LTSM Job Safety Analysis

Site: Burrell, Pennsylvania		JSA Number: BUR-99-1	
Task: Annual Site Inspection			
Prepared by: C. A. Jones	Date: 10/10/99	Reviewed by:	Date:

Site Hazards

-Large area of rough, irregular riprap
-October: Rapid weather changes. Rain, freezing rain.
-Locals seem to think there are copperheads in the area.
-Poison Ivy possible.

Protective Clothing Required/Suggested

-Sturdy boots with ankle support are recommended.
-Clothing appropriate for cool days and rain.

Protective Equipment Required/Suggested

-Drinking water
-Personal items such as sunscreen, sunglasses, hat, insect repellant
-First-aid kit

Medical & Emergency Service Information

Fire 911

Hospital (at Indiana, PA) 412-357-7000

Ambulance 911

Police 412-349-2121

Appendix D

Agency Notification Agreements

Department of Energy
Albuquerque Field Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400
JUN 0 1 1993

Mr. Paul Beatty, Coordinator
Indiana County Emergency Management
825 Philadelphia Street
Indiana, PA 15701

Dear Mr. Beatty:

The U.S. Department of Energy (DOE) Uranium Mill Tailings Remedial Action (UMTRA) Project is requesting notification in the event of issuance of flash flood, tornado warnings, or hurricane alert in Indiana County, Pennsylvania. We would appreciate notification to the DOE Grand Junction Projects Office's 24-hour phone line at (303) 248-6070 within eight hours of issuance of a warning or episode of warnings.

The purpose of this warning is to assist the DOE in surveying and maintaining the integrity of its radioactive waste disposal site located one mile east of the Borough of Blairsville, Indiana County, in southwestern Pennsylvania. The Burrell vicinity property site is bordered on the south by the Conemaugh River and to the north by the Conrail railroad tracks. The enclosed map provides directions to the site if you are not familiar with its location.

If the notification request discussed above is agreeable to you, please sign and return the enclosed reply letter for our records as soon as possible.

Should you have any questions, please contact Steve Hamp of my staff at (505) 845-5640.

Sincerely,

Albert R. Chernoff
Project Manager
Uranium Mill Tailings Remedial Action
Project Office

2 Enclosures

J. Virgona, GJPO
C. Jones, GJPO
S. Hamp, UMTRA
F. Bosiljevac, UMTRA
E. Artiglia, UMTRA

Albert R. Chernoff
UMTRA Project Manager
U.S. Department of Energy
Uranium Mill Tailings Remedial Action Project Office
5301 Central Ave., N.E., Suite 1720
Albuquerque, NM 87108

Attention: Steve Hamp

Dear Mr. Chernoff:

This letter is to concur with the U.S. Department of Energy (DOE) request for notification as set forth in the DOE's letter of JUN 0 1 1993, 1993. As requested in your letter, this office will contact the DOE's Grand Junction Projects Office at (303) 248-6070 within 8 hours of the issuance of a flash flood, tornado warning, or hurricane alert in Indiana County, Pennsylvania. During normal business hours, the warning may also be faxed to (303) 248-6040.

Sincerely,

Paul R Beatty
Name

Director
Title

Indiana County Emergency Management
825 Philadelphia Street
Indiana, PA 15701

Enclosures

cc: JVirgona, GJPO
CJones, GJPO
SHamp, UMTRA
FBosiljevac, UMTRA
EArtiglia, TAC

Department of Energy
Albuquerque Field Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

MAR 1 6 1993

Mr. Bruce Presgrave
U.S. Geological Survey
National Earthquake Information Center
P.O. Box 25046, Mail Stop 967
Denver Federal Center
Denver, CO 80225

Dear Mr. Presgrave:

The U.S. Department of Energy (DOE) Uranium Mill Tailings Remedial Action (UMTRA) Project Office is requesting notification if a seismic event is recorded in Indiana County, Pennsylvania. The purpose of this request is to assist the DOE in surveying and maintaining the integrity of its radioactive waste disposal site located approximately one mile east of the Borough of Blairsville, (Latitude N40°.3'/Longitude W79°.3') Indiana County, in southwestern Pennsylvania.

We would appreciate notification to the DOE Grand Junction Projects Office's 24-hour phone line at (303) 248-6070 if a seismic event(s) occurs that fits any of the following descriptions:

- Any earthquake of magnitude 3.0 or greater, within 0.3 degrees (about 20 miles) of the disposal site, or
- Any earthquake of magnitude 5.0 or greater, within 1.0 degrees (about 70 miles) of the disposal site.

If the notification request discussed above is agreeable to you, please sign and return the enclosed reply letter for our records as soon as possible.

Should you have any questions, please contact Steve Hamp of my staff at (505) 845-5640. Thank you for your attention in this matter.

Sincerely,

for Albert R. Chernoff
Project Manager
Uranium Mill Tailings Remedial Action
Project Office

2 Enclosures

cc w/o enclosures:
J. Virgona, GJPO
C. Jones, GJPO
S. Hamp, UMTRA
F. Bosiljevac, UMTRA
E. Artiglia, TAC

Department of Energy
Albuquerque Field Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

SEP - 5 1993

Mr. Bruce Presgrave
U.S. Geological Survey
National Earthquake Information Center
P.O. Box 25046
Mail Stop 967
Denver Federal Center
Denver, Colorado 80225

Dear Mr. Presgrave:

On December 14, 1992, the U.S. Department of Energy (DOE) Uranium Mill Tailings Remedial Action (UMTRA) Project Office received your letter confirming that the following four UMTRA Project sites, Green River, Utah; "Spook" site, Wyoming; Tuba City, Arizona; and Shiprock, New Mexico; have been added to your notification list for earthquakes. These sites were entered into the following selection criteria:

1. Any earthquake of magnitude 3.0 or greater, within 0.3 degrees (about 20 miles) of any of the sites.

2. Any earthquake of magnitude 5.0 or greater, within 1.0 degrees (about 70 miles) of any of the sites.

We appreciate the addition of these sites to your notification system.

The UMTRA Project will have 16 additional radioactive waste disposal sites requiring earthquake notification. The 16 additional site locations are listed below. We would appreciate the inclusion of these sites into your notification system. The DOE requests notification to the DOE Grand Junction Projects Office 24-hour phone line at (303) 248-6070 if any seismic event occurs that fit the criteria listed above. If this notification request is agreeable to you, please sign and return the attached reply letter for our records as soon as possible.

Disposal Site	Latitude	Longitude
COLORADO		
Durango (Bodo Canyon)	N37.15	W107.90
Grand Junction	N38.91	W108.32
Gunnison (Landfill)	N38.51	W106.85
Maybell	N40.55	W107.99
Naturita (Dry Flats)	N38.21	W108.60
Rifle (Estes Gulch)	N39.60	W107.82
Slick Rock (Burro Canyon)	N38.05	W108.87

Disposal Site	Latitude	Longitude
IDAHO		
Lowman	N44.16	W115.61
NEW MEXICO		
Ambrosia Lake	N35.41	W107.80
NORTH DAKOTA		
Bowman	N46.23	W103.55
OREGON		
Lakeview (Collins Ranch)	N42.2	W120.3
PENNSYLVANIA		
Canonsburg	N40.26	W80.25
Burrell VP	N40.62	W79.65
TEXAS		
Falls City	N28.91	W98.13
UTAH		
Mexican Hat	N37.10	W109.85
Salt Lake City (Clive)	N40.69	W113.11

If there are any questions or concerns about this request, please contact me at (505) 845-5659 or Linda Ulland, Manager of Environmental Regulations and Compliance with the UMTRA Project Office's Technical Assistance Contactor at (505) 845-5671.

Sincerely,

Russel Edge
for

Clinton C. Smythe
Engineering and Construction Group Leader
Uranium Mill Tailings Remedial Action
Project Office

Enclosure

cc w/o enclosure:
C. Jones, GJPO
J. Virgona, GJPO
F. Bosiljevac, UMTRA
S. Hamp, UMTRA
M. Abrams, UMTRA
W. Woodworth, UMTRA
S. Arp, UMTRA
E. Artiglia, TAC
M. Day, TAC
M. Leaf, TAC
J. McBee, TAC
L. Ulland, TAC
C. Watson, TAC
C. Yancey, TAC

Clinton C. Smythe
Engineering and Construction Group Leader
Uranium Mill Tailings Remedial Action
Project Office
2155 Louisiana NE, Suite 4,000
Albuquerque, NM 87110

Dear Mr. Smythe:

This letter is to confirm that the DOE Grand Junction Projects Office (24-hour phone line, (303) 248-6070 has been added to our notification list for the occurrence of earthquakes near the following locations:

Disposal Site	Latitude	Longitude
COLORADO		
Durango (Bodo Canyon)	N37.15	W107.90
Grand Junction	N38.91	W108.32
Gunnison (Landfill)	N38.51	W106.85
Maybell	N40.55	W107.99
Naturita (Dry Flats)	N38.21	W108.60
Rifle (Estes Gulch)	N39.60	W107.82
Slick Rock (Burro Canyon)	N38.05	W108.87
IDAHO		
Lowman	N44.16	W115.61
NEW MEXICO		
Ambrosia Lake	N35.41	W107.80
NORTH DAKOTA		
Bowman	N46.23	W103.55
OREGON		
Lakeview (Collins Ranch)	N42.2	W120.3
PENNSYLVANIA		
Canonsburg	N40.26	W80.25
Burrell VP	N40.62	W79.65
TEXAS		
Falls City	N28.91	W98.13
UTAH		
Mexican Hat	N37.10	W109.85
Salt Lake City (Clive)	N40.69	W113.11

We have entered the following selection criteria into our notification program:

1. Any earthquake of magnitude 3.0 or greater, within 0.3 degrees (about 20 miles) of any site shown above, or

2. Any earthquake of magnitude 5.0 or greater, within 1.0 degrees (about 70 miles) of any site shown above.

Sincerely,

Bruce Presgrave
U.S. Geological Survey
National Earthquake Information Center
P.O. Box 25046
Mail Stop 967
Denver Federal Center
Denver, Colorado 80225

Department of Energy
Albuquerque Field Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

MAR 1 6 1993

Lt. Tripp
Indiana, Pennsylvania State Police
401 Airport Center
Indiana, PA 15701

Dear Lt. Tripp:

The U.S. Department of Energy (DOE) Uranium Mill Tailings Remedial Action (UMTRA) Project Office is requesting notification of any unusual activities or events in or around the uranium mill tailings disposal cell located approximately one mile east of the Borough of Blairsville, Indiana County, in southwestern Pennsylvania. The purpose of the notification request is to assist the DOE in surveying and maintaining the integrity of its disposal cell and to ensure public safety.

If, during the course of routine activities, anything out of the ordinary is observed by your staff or reported to your office, we would appreciate immediate notification to the DOE Grand Junction Projects Office's 24-hour phone line at (303) 248-6070. The enclosed map provides directions to the site if you are not familiar with its location.

If the notification request discussed above is agreeable to you, please sign and return the enclosed reply letter for our records as soon as possible.

Should you have any questions, please contact Steve Hamp of my staff at (505) 845-5640. Thank you for your attention in this matter.

Sincerely,

gs/Albert R. Chernoff
Project Manager
Uranium Mill Tailings Remedial Action
Project Office

2 Enclosures

cc w/o enclosures:
J. Virgona, GJPO
C. Jones, GJPO
F. Bosiljevac, UMTRA
S. Hamp, UMTRA
E. Artiglia, TAC

MIS/UMT/0393-0031

Albert R. Chernoff
UMTRA Project Office
U.S. Department of Energy
Uranium Mill Tailings Remedial Action
Project Office
5301 Central Ave., N.E., Suite 1720
Albuquerque, NM 87108

Attention: Steve Hamp

Dear Mr. Chernoff:

This letter is to concur with the U.S. Department of Energy (DOE) request for notification as set forth in the DOE's letter of MAR 1 6 1993, 1993. As requested in your letter, this office will contact the DOE's Grand Junction Projects Office at (303) 248-6070 if any unusual event or anomaly is observed or reported at the Burrell Vicinity Property disposal site.

Sincerely,

James R. Tupp
Name

LIEUTENANT - STATION COMMANDER.
Title

Indiana, Pennsylvania State Police
401 Airport Center
Indiana, PA 15701

cc:
J. Virgona, GJPO
C. Jones, GJPO
F. Bosiljevac, UMTRA
S. Hamp, UMTRA
E. Artiglia, TAC

Certification and Concurrence Documentation

These documents were appended to the revised Long-Term Surveillance Plan after the plan was concurred in by the U.S. Nuclear Regulatory Commission:

DOE Certification and NRC Concurrence in Completion of Remedial Action, May 20, 1994
NRC Concurrence in the LTSP, May 27, 1994
NRC Concurrence in the Revised LTSP and Technical Evaluation Report, January 28, 2002

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

MAY 20 1994

Mr. Albert R. Chernoff, Project Manager
Uranium Mill Tailings Remedial Action
Project Office
U. S. Department of Energy
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87185-5400

Dear Mr. Chernoff:

The U.S. Nuclear Regulatory Commission staff concurs that the U.S. Department of Energy (DOE) has performed remedial action at the Burrell Vicinity Property, a fenced disposal site, designated as CA-200 by the DOE, in accordance with the approved Radiological and Engineering Assessment (REA), REA modifications, and the Environmental Protection Agency standards in 40 CFR Part 192.

The staff concurrence is based on its review of the Completion Report (CR) and all associated documents pertinent to the completed remedial action, including the March 1994 version of Volumes 1, 2, and 2A of the CR, transmitted with your letter of April 7, 1994, and on observations during periodic on-site construction reviews at the Burrell site. Our review is documented in the enclosed Completion Review Report which discusses the staff's evaluation of the completed remedial action. The NRC staff has signed the enclosed signature pages indicating NRC concurrence in completion of the Burrell site remedial action.

If you have any questions, please contact the NRC Project Manager, Mike Fliegel at (301) 415-6629.

Sincerely,

Dan M. Gillen for

Joseph J. Holonich, Chief
High-Level Waste and
Uranium Recovery Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosures: As stated

cc: C. Smythe, DOE Alb
S. Hamp, DOE Alb
D. Bierley, TAC Alb
J. Yusko, PA DER

U.S. DEPARTMENT OF ENERGY
CERTIFICATION SUMMARY
for the
Burrell, Pennsylvania, Vicinity Property Site

The Uranium Mill Tailings Remedial Action Project Manager and the Contracting Officer for the U.S. Department of Energy certify that the Burrell, Pennsylvania, vicinity property remedial action is complete. The uranium tailings have been stabilized on-site and the disposal cell meets all design criteria and technical specifications contained in the approved Radiological and Engineering Assessment, as required under Public Law 95-604. This certification applies only to the earth surface remediation. The groundwater restoration activities at the Burrell vicinity property site will be completed separately. The undersigned request that the U.S. Nuclear Regulatory Commission concur in this certification.

Melanie J. Thomas
Contracting Officer
Programs and R&D Branch
Contracts and Procurement Division

DATE: 4/6/94

Albert R. Chernoff
Project Manager
Uranium Mill Tailings Remedial
Action Project Office

DATE: 4/5/94

High Level Waste and
Uranium Recovery Projects Branch
The Chief, ~~Uranium Recovery Branch,~~ U.S. Nuclear Regulatory Commission hereby concurs with the U.S. Department of Energy's completion of surface remedial action at the Burrell, Pennsylvania vicinity property site.

Mr. Joseph J. Holonich, Chief
High Level Waste and
Uranium Recovery Projects Branch
Division of Waste Management
Office of Nuclear Materials Safety
and Safeguards
U.S. Nuclear Regulatory Commission

DATE: 5/20/94

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

MAY 27 1994

Mr. Albert R. Chernoff, Project Manager
Uranium Mill Tailings Remedial Action
Project Office
U. S. Department of Energy
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87185-5400

Dear Mr. Chernoff:

The U.S. Nuclear Regulatory Commission staff hereby accepts the U.S. Department of Energy's (DOE's) final Long-Term Surveillance Plan (LTSP) for the Burrell, Pennsylvania Vicinity Property, a fenced disposal site (CA-200). This action establishes the Burrell site under the general license in 10 CFR Part 40.27.

The acceptance of the LTSP is based on the staff's determination that all of the open issues have been adequately addressed in the page changes, transmitted to us with your letter dated September 23, 1993, to the July 1992 revised version of the final LTSP. The LTSP satisfies the requirements set forth in the Uranium Mill Tailings Radiation Control Act of 1978 for long-term surveillance of a disposal site, and all requirements in 10 CFR Part 40.27 for an LTSP.

In accordance with DOE's guidance document for long-term surveillance, all further NRC/DOE interaction on the long-term care of the Burrell site will be conducted with the DOE's Grand Junction Projects Office. If you have any questions, please contact the NRC Project Manager, Dr. Myron Fliegel at (301) 415-6629.

Sincerely,

Joseph J. Holonich

Joseph J. Holonich, Chief
High-Level Waste and
Uranium Recovery Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

cc: C. Smythe, DOE Alb
S. Hamp, DOE Alb
D. Bierley, TAC Alb
J. Virgona, DOE GJPO
J. Yusko, PA DER

RECORD

01.01
LBUR ~~01.01.03~~

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 28, 2002

FEB - 4 2002

Art Kleinrath
U.S. Department of Energy
Grand Junction Office
2597 B3/4 Road
Grand Junction, CO 81503

SUBJECT: Review and Comments on Revised Long-Term Surveillance Plan for the Burrell Disposal Site at Blairsville, Pennsylvania

Dear Mr. Kleinrath:

The U.S. Department of Energy (DOE) assumed control of the uranium mill tailings site, Burrell vicinity property, in 1994. As long-term custodian of the site, DOE provided maintenance and monitoring in accordance with the Long-Term Surveillance Plan (LTSP) which was submitted to and approved by the U.S. Nuclear Regulatory Commission (NRC). During the past eight years, DOE revised the LTSP to incorporate herbicide application to remove vegetation on the impoundment. After several years of herbicide application and monitoring the site, DOE requested that the LTSP be again revised to remove the requirement to apply herbicide stating that not applying the herbicide would not increase risk to human health or the environment. Additionally, DOE requested that the ground-water monitoring requirements be revised.

NRC reviewed the revised LTSP for the Burrell vicinity property submitted by DOE in June 2000 and other supplementary information which included a report evaluating the effects of plant encroachment on long-term stability and a letter giving detailed information about changes in the ground-water monitoring program. After reviewing all the information provided, the NRC staff identified no additional risk to the long-term stability of the disposal site or risk to the public. The revised version of the LTSP, dated April 2000, will replace all other versions.

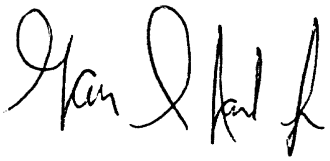
The review noted a few small errors that should be corrected. The plant encroachment report contains an error at the bottom of Table 3-1 (page 9). The NRC default radon emanation coefficient or the radium value for the cover is not zero. The actual value for all material is 0.35 from Regulatory Guide 3.64, which also states that the radium activity in the cover soils may be neglected under certain conditions. The second error is a typographical and is in Table 3-3 under 1 Ra-226 activity. The third time-frame should be 1000 years and not 100 years.

The new version of the LTSP indicates that "vegetation control is no longer required at this site." The NRC has no objections to the modification since the change poses no additional risk to the long-term stability. However, NRC does suggest that DOE consider a small follow-up study in 10 or 20 years to check the important parameters used to support this decision. For example, that DOE measure moisture content and dry bulk density of the root impacted barrier to compare to the values used in the radon flux model (Table 3-4). All ground-water monitoring modifications have been approved, as discussed in the enclosed Technical Evaluation Report.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Should you have any questions regarding this matter, please contact Jill Caverly, the NRC Project Manager at 301-415-6699 or by email at jsc1@nrc.gov.

Sincerely,



Melvyn N. Leach, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. WM-42
Enclosure: Technical Evaluation Report

TECHNICAL EVALUATION REPORT
REVISION TO LONG-TERM SURVEILLANCE PLAN FOR
VEGETATION CONTROL AND GROUND-WATER MONITORING

DATE: January 23, 2002

DOCKET NO.: WM-42

LICENSEE: U.S. Department of Energy

PROJECT MANAGER: Jill S. Caverly

TECHNICAL REVIEWER: Elaine Brummett, Michael Layton

SUMMARY AND CONCLUSIONS:

The U.S. Department of Energy Grand Junction Office (DOE) submitted to the U.S. Nuclear Regulatory Commission (NRC) for review, a revised Long-Term Surveillance Plan (LTSP) for the Burrell vicinity property. The changes to the LTSP, based on study of the site and a decade of maintenance experience, included deletion of the vegetation control requirement and revisions to the ground-water monitoring program. DOE provided supporting information and justification that the changes would not increase the risk to human health and the environment. NRC has approved the changes to the LTSP and officially replaces any previous version of the LTSP.

TECHNICAL EVALUATION:

The Burrell, PA disposal cell is a uranium mill tailings landfill constructed in 1987. DOE assumed ownership of the site in 1994 and has been inspecting and monitoring the site since. Observations of the cell noted the establishment of a diverse plant community only a few years after completion of the impoundment. After almost 10 years, an exotic perennial, Japanese knotweed, had rooted into the rock cover and the compacted soil layer. The vegetative growth on the impoundment raised two concerns for the long-term custodian, DOE. Those are root intrusion effects on the radon flux emanating from the impoundment and increased water movement through the cover and leaching of underlying tailings. In response to these concerns, the original version of the LTSP was updated several years ago to recommend herbicide applications every 2 to 3 years to suppress plant growth.

Since that time, DOE has been applying herbicide to the site as part of its regular maintenance activity. Application of herbicide has environmental effects and costs. In an effort to reduce these effects and reduce maintenance, DOE proposed revisions to the LTSP including deletion of vegetation control measures (i.e., application of herbicide) and revisions to the ground-water monitoring program. Along with the revised LTSP, DOE provided a copy of a supplemental

report entitled, *Plant Encroachment on the Burrell, Pennsylvania, Disposal Cell: Evaluation of Long-Term Performance and Risk*. The report discusses the results of a two part evaluation of the effects of plant root intrusion and ecological development on the performance.

Additional changes to the LTSP included revisions to the ground-water monitoring program. Two up-gradient wells were proposed for deletion and several analytes will no longer be monitored. The final change to the LTSP is the revision of the monitoring schedule from annually to every five years.

Plant Encroachment Study

Long-term application of herbicide poses its own environmental effects and increases the long-term care costs. DOE has completed a study reviewing the consequences of not applying herbicide with the goal of implementing a reasonable vegetation program. In order to study the long-term effects at the site, the authors of the study examined a nearby site (analog site) which exhibited the same soil, climate, vegetation and slope characteristics as the disposal cell to understand what effects this vegetation might have on the long-term function of the disposal cell.

The first part of the study evaluated the effects of root intrusion on radon flux and the saturated hydraulic conductivity of the cover, and resulted in two findings. The first was that the increased root intrusion, due to the termination of vegetation control and drying of the cover, will not likely increase radon flux above the 20 $pCi/s^2/m^2$ standard unless the climate changes from humid to semiarid. The second finding was that the plant roots do increase the saturated hydraulic conductivity where plant roots penetrated the impoundment cover. The increase in hydraulic conductivity was determined to be 2 orders of magnitude. The analog site, which represents the feasible future conditions of the ecological and pediogenic characteristics of the impoundment cover, was evaluated and the change of hydraulic conductivity was 3 orders of magnitude.

Part 2 of the study evaluated possible consequences of increased water movement into the tailings that might result from root intrusion in the cover. A risk assessment was performed to determine the concentration and mobility of the contaminants in the tailings pore fluid. Composite tailings samples were retrieved from locations within the disposal cell that had the highest radium levels at the time of construction. The samples were used in column leach tests to estimate the concentration of constituents through out a range of conditions including current, possible future, and extreme chemical conditions. Results of this analysis showed that manganese, molybdenum, selenium, uranium and Ra -226 in the pore fluid may exceed Uranium Mill Tailings Radiation Control Act (UMTRCA) standards or U.S. Environmental Protection Agency (USEPA) maximum concentration levels which indicates that water extracted from the disposal cell itself may be unsafe to drink. This is the most direct exposure path and the worst-case scenario.

The second phase of part 2 of the study evaluated ground-water quality beneath the disposal cell for a wide range of conditions that may be expected to occur over the life of the project. The results of the investigation showed that no contaminants of concern for the site came close to UMTRCA maximum concentration levels or EPA risk-based screening levels except for Ra-226 which could exceed by a maxium of 10 percent. The Ra-226 exceedance would occur under a

highly unlikely set of conditions including low pore water pH, a 2 to 3 order of magnitude increase in saturated hydraulic conductivity, 1000 years of Ra-226 ingrowth and pore water contamination.

The final results of the study state that "DOE can safely eliminate this requirement from the Burrell long-term surveillance plan. Natural plant succession can be allowed to proceed with no increased risk to human health or the environment."

NRC Staff Review of Plant Encroachment Report

The NRC staff have reviewed the revised LTSP and the report titled, *Plant Encroachment on the Burrell, Pennsylvania, Disposal Cell: Evaluation of Long-Term Performance and Risk* and agree that the study shows no additional risk to human health and the environment should the herbicide program cease. However, the staff points out that a follow-up study should be conducted in 10 or 20 years to check the parameters used to support this decision. For example, perform some measurements of moisture content and dry bulk density of the root-impacted radon barrier to compare to the values used in the radon flux model.

Revision of Ground-Water Sampling Requirements

DOE revision to the LTSP would also: 1) delete monitoring requirements for up-gradient wells, MW-421 and MW-521, replacing with similar wells, 2) reduce number of analytes and sampling frequency, and, 3) eliminate surface water sampling of the Conemaugh River.

DOE has been unable to obtain permanent access to the up-gradient wells that are located on property owned by the railroad. In light of this difficulty, DOE asked that the monitoring of these wells be eliminated and that a similar pair of up-gradient wells with better access but similar location and characteristics continue to be monitored for ground-water contamination. DOE also requested that five analytes (ammonia, cyanide, gross alpha, radium-226 and -228, and vanadium) be removed from the list of analytes because they have consistently been below detection limits or maximum concentration limits. DOE stated that the remaining analytes will provide sufficient information to evaluate the site. It was also requested that the frequency be reduced because past sampling has failed to demonstrate significant trends since most of the results are below the MCL. DOE has proposed decreasing the sampling frequency to once every five years. The final change requested was the elimination of surface water sampling in the Conemaugh River. DOE proposed eliminating this because past sampling of the surface water has not provided meaningful information. However, DOE proposed continuing the monitoring of the surface water of two seeps when the flow is sufficient to collect samples.

NRC Review of Ground-Water and Surface Water Sampling Changes.

NRC staff has reviewed the changes to the LTSP and has determined that the changes to the ground-water sampling are acceptable. DOE ground-water monitoring data since 1993 indicates that no unusual circumstances have been observed at the site and that the ground-

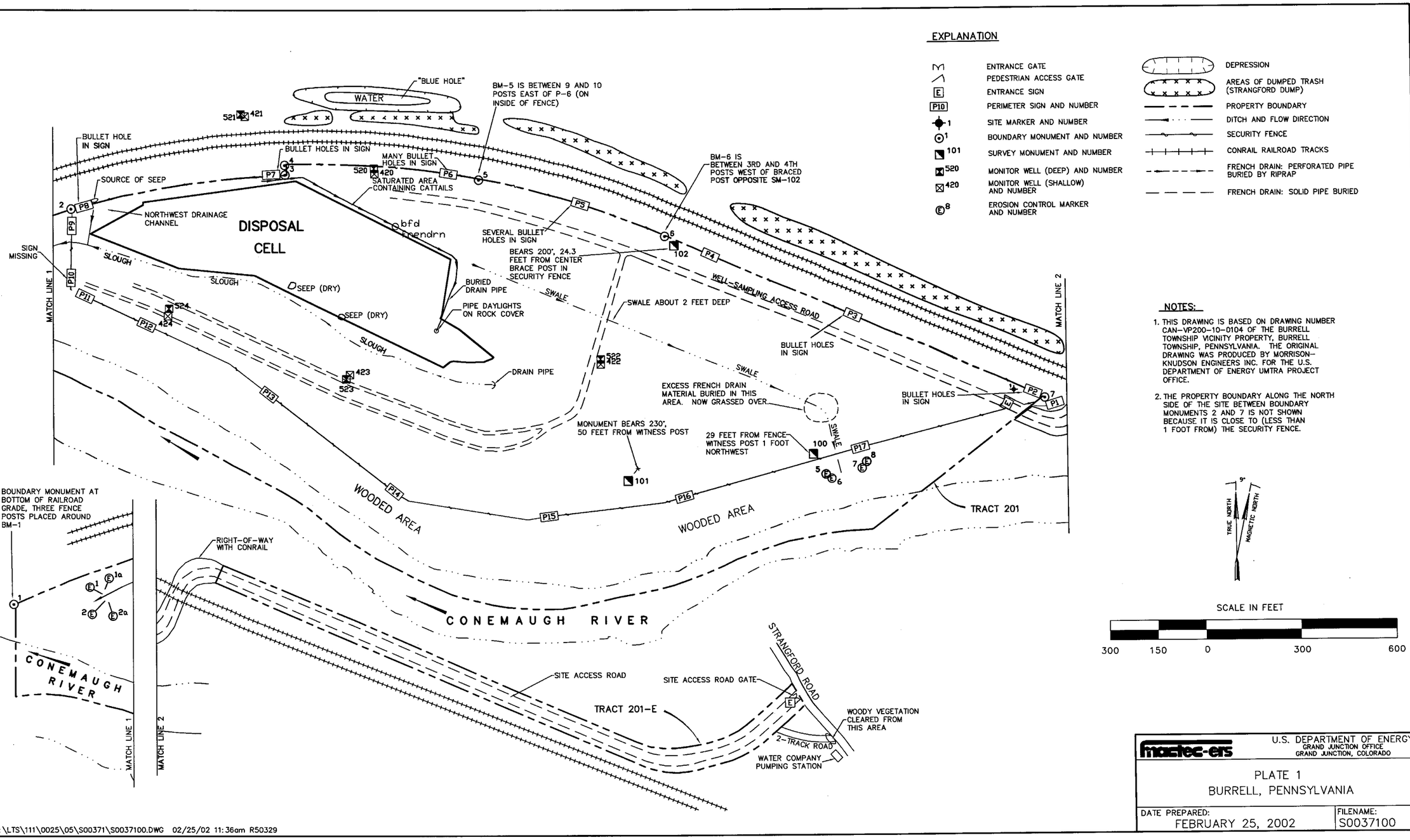
water quality has not significantly changed since licensing. Eliminating the up-gradient monitoring wells should not adversely impact the ground-water monitoring program since a similar well set, in location and depth, will continue to be monitored. DOE will continue to sample and analyze for calcium, chloride, iron, lead, magnesium, molybdenum, nitrate, potassium, selenium, sodium, sulfate, total dissolved solids, and uranium. The remaining constituents are more than adequate to determine whether seepage from the disposal cell is impacting local ground water.

REFERENCES:

Plant Encroachment on the Burrell, Pennsylvania, Disposal Cell: Evaluation of Long-Term Performance and Risk, dated July 1999, DOE -Grand Junction Office, submitted by letter dated April 27, 2000.

Long-Term Surveillance and Maintenance Plan for US DOE Vicinity Property, Blairsville, Pennsylvania, revised April 2000, submitted by letter dated April 27, 2000.

Letter from Art Kleinrath (DOE) dated March 9, 2001 to Phillip Ting (NRC) "Clarification of Reduced Ground Water and Surface Water Monitoring as Proposed in the Revised Long-Term Surveillance Plan for the Burrell Vicinity Property, Blairsville, Pennsylvania.


EXPLANATION
ENTRANCE GATE
PEDESTRIAN ACCESS GATE
ENTRANCE SIGN
PERIMETER SIGN AND NUMBER
SITE MARKER AND NUMBER
BOUNDARY MONUMENT AND NUMBER
SURVEY MONUMENT AND NUMBER
MONITOR WELL (DEEP) AND NUMBER
MONITOR WELL (SHALLOW) AND NUMBER
EROSION CONTROL MARKER AND NUMBER
DEPRESSION
AREAS OF DUMPED TRASH (STRANGFORD DUMP)
PROPERTY BOUNDARY
DITCH AND FLOW DIRECTION
SECURITY FENCE
CONRAIL RAILROAD TRACKS
FRENCH DRAIN: PERFORATED PIPE BURIED BY RIPRAP
FRENCH DRAIN: SOLID PIPE BURIED
"BLUE HOLE"
WATER
BM-5 IS BETWEEN 9 AND 10 POSTS EAST OF P-6 (ON INSIDE OF FENCE)
BULLET HOLE IN SIGN
BULLET HOLES IN SIGN
MANY BULLET HOLES IN SIGN
SATURATED AREA CONTAINING CATTAILS
SOURCE OF SEEP
NORTHWEST DRAINAGE CHANNEL
DISPOSAL CELL
bfd
fpendrn
BM-6 IS BETWEEN 3RD AND 4TH POSTS WEST OF BRACED POST OPPOSITE SM-102
SEVERAL BULLET HOLES IN SIGN
BEARS 200°, 24.3 FEET FROM CENTER BRACE POST IN SECURITY FENCE
SIGN MISSING
SLOUGH
SEEP (DRY)
BURIED DRAIN PIPE
PIPE DAYLIGHTS ON ROCK COVER
SWALE
SWALE ABOUT 2 FEET DEEP
WELL-SAMPLING ACCESS ROAD
BULLET HOLES IN SIGN
DRAIN PIPE
EXCESS FRENCH DRAIN MATERIAL BURIED IN THIS AREA. NOW GRASSED OVER
BULLET HOLES IN SIGN
MONUMENT BEARS 230°, 50 FEET FROM WITNESS POST
29 FEET FROM FENCE-WITNESS POST 1 FOOT NORTHWEST
WOODED AREA
WOODED AREA
TRACT 201
MATCH LINE 1
MATCH LINE 2
BOUNDARY MONUMENT AT BOTTOM OF RAILROAD GRADE, THREE FENCE POSTS PLACED AROUND BM-1
RIGHT-OF-WAY WITH CONRAIL
CONEMAUGH RIVER
CONEMAUGH RIVER
SITE ACCESS ROAD
SITE ACCESS ROAD GATE
STRANGFORD ROAD
TRACT 201-E
WOODY VEGETATION CLEARED FROM THIS AREA
2-TRACK ROAD
WATER COMPANY PUMPING STATION
NOTES:
1. THIS DRAWING IS BASED ON DRAWING NUMBER CAN-VP200-10-0104 OF THE BURRELL TOWNSHIP VICINITY PROPERTY, BURRELL TOWNSHIP, PENNSYLVANIA. THE ORIGINAL DRAWING WAS PRODUCED BY MORRISON-KNUDSON ENGINEERS INC. FOR THE U.S. DEPARTMENT OF ENERGY UMTRA PROJECT OFFICE.
2. THE PROPERTY BOUNDARY ALONG THE NORTH SIDE OF THE SITE BETWEEN BOUNDARY MONUMENTS 2 AND 7 IS NOT SHOWN BECAUSE IT IS CLOSE TO (LESS THAN 1 FOOT FROM) THE SECURITY FENCE.
9°
TRUE NORTH
MAGNETIC NORTH
SCALE IN FEET
300 150 0 300 600
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION OFFICE
GRAND JUNCTION, COLORADO
PLATE 1
BURRELL, PENNSYLVANIA
DATE PREPARED:
FEBRUARY 25, 2002
FILENAME:
S0037100
M:\LTS\111\0025\05\S00371\S0037100.DWG 02/25/02 11:36am R50329